

A reply to Dr. Robinson's Criticism of the "List of Pteridophyta and Spermatophyta of Northeastern America."

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It is with great regret that I have found myself called upon, under circumstances that make compliance a necessity, to reply to Dr. Robinson's criticism, published in the preceding number of this journal, on the List of Pteridophyta and Spermatophyta Growing without Cultivation in Northeastern North America, prepared by a Committee of the Botanical Club, American Association for the Advancement of Science. My hesitation is due to a feeling that nomenclatural discussions are often of little value, tending as they so frequently do to the expression of mere individual custom and prejudice. Since, however, I have never before put into print, except as a member of a committee, any statement of belief regarding principles of nomenclature, and have never published a controversial line on the subject, while at the same time I have been an active worker in the reform of our botanical nomenclature, I hope that I may not be accused unjustly, as others have been, of having thought little and written much.

First I must protest against Dr. Robinson's assumption, which pervades his whole article, that Dr. Britton, chairman of the check-list committee, is its real author, and that the other eight members were largely ornamental, if I may be permitted to use that word. In order that a false and injurious impression of this matter may not be further disseminated, it should be stated at once, that after another member of the committee had endeavored unsuccessfully to provide means for publishing the manuscript, as submitted by various members of the committee and by others, Dr. Britton consented to undertake the task and issue the publication from New York. The editorial work and the final verification of references fell therefore largely to Dr. Britton. Galley proofs were always sent, however, to each of the editors, and no small amount of time was spent by them in annotations and corrections and the verification of marked references.

If Dr. Robinson, furthermore, intended to express the opinion that Dr. Britton alone is responsible for the principles

upon which the nomenclature of the check-list is based I must again protest. Not one of the principles therein incorporated is original either with Dr. Britton or with any other member of the committee, but all of them have been in practice in this or in other branches of biological science before the present code was formulated. More than this, some of the botanists who afterward became members of the committee had become definitely convinced of the validity of the main principles finally adopted, long before Dr. Britton had given expression to them. Dr. Britton has been most active and influential in *hastening* the reform of nomenclature in botany, and he has borne unflinchingly the brunt of criticism. It is therefore a matter of congratulation to him that the principles he has advocated have coincided in the main with those which have stood the test of experience in other branches of science and which have appealed also to the judgment of his fellow botanists.

Several years ago, when my own views on principles of nomenclature were in a formative stage, I had the good fortune to ask the eminent ichthyologist, Dr. David Starr Jordan, now president of Stanford University, what he considered the fundamental requirement of a stable system. His characteristic reply was, "There are only two ways of naming plants or animals, either to give them their oldest names or to give them any names you please." This epigrammatic statement represents well the difference between the new and the old systems. By the old, the standard is a moving one, changing from decade to decade in meeting the literary taste and custom of the time, or in conforming with the individual liking—too often arbitrary or capricious—of some stronger and more prolific writer. By the new system, on the contrary, the standard is a fixed one, and the possible errors of early practice are open to later correction, while the rare cases that do not appear to admit of decision by rule are necessarily in a position to be fully discussed and ultimately disposed of by agreement.

The detailed criticisms made by Dr. Robinson can not for want of space and time be discussed here, nor are they pertinent to the principles involved. Whether the name *Konig* or *Koniga* is the correct one, whether we shall write *Butneria* or *Büttneria*, whether the binding of a separately paged supplement at the beginning of a book makes it no longer a supple-

ment, or whether albinos shall be treated as forms or as varieties, all these are proper matters for the expression of opinion and argument. I know that the committee would have been grateful and would still be grateful to Dr. Robinson or any other botanist for useful suggestions on these matters, and that all communications of this kind would receive fair hearing and sober judgment.

For the errors of citation which Dr. Robinson has pointed out it is hardly necessary to apologize. Those who have systematically verified by consultation of original sources of publication all the page and plate references in any group of plants of even moderate size, will appreciate the enormity of the task that devolved upon the committee in dealing with more than 10,000 references, ninety-eight per cent. of which were finally verified. But all errors in the book will be rectified hereafter, and while the few that now occur may be temporarily annoying to the botanist who uses the list, they have nothing to do with the principles themselves.

With reference to Dr. Robinson's criticism that the checklist differs from current standards in its conception of genera and species, I wish again to point out that, while the checklist is more nearly in accord with the highest recognised authority, Engler and Prantl's *Natürlichen Pflanzenfamilien*, than is any local or general descriptive American work, this fact has nothing to do with any system of nomenclature whatever and is not used justly as an argument in this case. Nor has the committee offered this treatment of genera and species as representing their combined judgment, for the contributor of each family is specifically and designedly named. The contributor is responsible for the matter, the committee for its presentation in proper form under the principles adopted by the club. Whether *Astragalus* and *Phaca* shall be treated as distinct genera as most European botanists treat them, or whether they shall be thrown into one, as most American botanists have held heretofore, is a question on which the contributor of the *Leguminosæ*, not the committee, has expressed an opinion. But all this aside, the disagreement between the contributors and Engler and Prantl are exceedingly few.

I must correct one lamentable error into which Dr. Robinson has fallen through a misinterpretation of one of the fundamental principles of the new system. He says (p. 101):

"It will always be possible for an erratic botanist to throw together large genera like *Aster* and *Erigeron*, *Bidens* and *Coreopsis*, *Panicum* and *Paspalum*, thereby displacing many specific names which according to the rule of "once a synonym always a synonym" can never be revived. This outcome seems so preposterous that it must be stated that it is not merely the writer's own unauthorized interpretation but the distinctly expressed although unpublished view of one of the compilers of the list, who has been among the foremost in the cause of nomenclature reform."

I fully agree with Dr. Robinson that the outcome he depicts would be preposterous, and I take this opportunity to point out his error, feeling also some responsibility for not having made the case clear to him formerly. The phrase "once a synonym always a synonym" is unfortunate and misleading, and I have preferred to substitute for it in conversation the equivalent phrase, "the rejection of homonyms." The principle is simply this, that after a name has once been published, the same name shall not again be a valid designation for any other plant, even though the original name should meanwhile have become a synonym of some other still older name. For example, the name *Bigelovia* has been applied to five or six widely scattered genera, all the earlier of which have been referred to other still older genera. The rule of the rejection of homonyms renders the name *Bigelovia*, therefore, unavailable for the genus to which it has been applied in recent years, and the check-list consequently takes up the next older name, *Chondrophora*. The force of the rule may be illustrated by the fact that by the old system, if any one of the earlier genera named *Bigelovia* should at any time be revived, it would necessitate a change also in the name of the later and current *Bigelovia*. There are many cases in which under the old system the revision of a family and the consequent necessary revival of some old generic name would entail changes in the names of two or three other genera as well. Under the new system a change in one generic name can not affect any other genus. Moreover, quite the opposite of Dr. Robinson's supposition, a restoration of the name *Bigelovia* would be perfectly valid, under this system, should the genus to which it was first applied be found really autonomous and therefore require a separate designation.

It is to be regretted that Dr. Robinson did not, while at the Madison meeting, bring forward for discussion his questions as to principles, for they undoubtedly were well understood,

and would have been ably explained, by many of the botanists present. Now that they have been adopted by overwhelming majorities in democratic botanical assemblages, we may well ask whether Dr. Robinson's protest is not out of place, and whether he has any available substitute to offer or improvement to suggest. He surely cannot expect American botanists to revert to a now discredited system of nomenclature under which they had been chafing more and more for the past fifteen years.

Dr. Robinson's remarkable statement of opinion that stability is not the most important quality of nomenclature, fills me with amazement. After a reconsideration of this view, having in mind the relation which must exist between stability and ready intelligibility, he surely will not attempt to maintain such a position.

Dr. Robinson's statement (p. 103) that uniformity, consistency, and stability of nomenclature are in his opinion unattainable, confirms my impression that he has only the faintest conception of the strength of the new principles or the community of opinion of which this simple list is the expression. One by one our botanists have become convinced that the new system *is* adequate to the requirements, and I cannot believe that Dr. Robinson, when he fully grasps the intent and the working of this code, can fail to be convinced of its utility. It would require too much space to recount the history of the new system, receiving successive impulses as it did from Henry and Arthur Adams in 1858, in conchology; from our own illustrious Baird in the same year, in ornithology; from the now venerable Dr. Gill in 1861, in ichthyology; and in the past twenty years perfected by other eminent biologists with whose names and work we are familiar. The Rochester meeting of botanists was held in 1892, the Madison meeting in 1893, and now in the spring of 1895 we are able to cite the following as some of the organizations which have already issued publications incorporating essentially the same principles of nomenclature as those under which the committee carried on its work.

United States National Museum.

United States Department of Agriculture, Division of Botany and Division of Forestry.

Arnold Arboretum.

Missouri Botanical Garden.

Columbia College Department of Botany.

Torrey Botanical Club.

Nebraska State University and State Botanical Survey.

Indiana State Botanical Survey.

University of Minnesota and State Natural History Survey.

University of California.

University of Wisconsin.

University of Ohio and State Botanical Survey.

Kansas Agricultural College.

Systematic Botany of North America.

Eli Lilly & Co., drug dealers.

United States Official Pharmacopœia of 1890 (the last issued).

Sargent's *Silva* of North America.

The directors of many other botanical establishments, many scientific serials, and a very large number of individual botanists have also published in conformity with the same principles. Thus the new system seems to have those marks of early virility which are usually possessed by long needed and stable reforms.

To hold that the ornithologists—to draw an illustration from a popular science—have not a more useful or stable nomenclature than formerly, or that they regret their reform, or that the movement has brought its early supporters into popular disrepute, or that the revised names are now considered objectionable, is to question matters of fact.

In closing, therefore, I feel justified in expressing the hope that Dr. Robinson and the few who think with him on this subject will lay aside personal prejudices and join the remaining nine-tenths of our botanists and almost all our conchologists, ichthyologists, herpetologists, ornithologists and mammalogists, in a nomenclature based on scientific needs and a scientific method.

United States National Herbarium, Washington, D. C.